

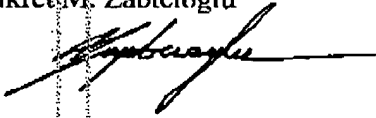
Remarks

1
2 . Page 23 is added to the pages that are amended. On page 20, an additional
3 correction is made on the previous amendment page 20, due to a typing error.

4 Both marked up and clean copies of pages 20 and 23 are provided.

5 2. No new matter is introduced by this change.
6
7
8
9
10
11
12
13
14
15

16 Respectfully submitted,

17 Fikret M. Zabcicoglu
18 
19
20
21
22
23

BEST AVAILABLE COPY

1 suspensions 13 and 14 cover two quadrants 20 and 21 of the disk 33 area concurrently and
2 can move independently. Data track 23a is one set of innermost tracks of the outer most set
3 of tracks, that are located on the outer 1/2 area of the disk 33. Similarly data track 22b is one
4 set of the inner most tracks that are within the inner 1/2 area of disk 33. The limited
5 designated distances 17 and 17a are assigned to each actuator members of the pair actuator
6 13. Similarly, the actuator pairs 14 move within the designated limited distances of 18 and
7 18a. The opposite quadrants 20 and 21 that the pair of actuators 13 and 14 function upon, are
8 the areas over which the system has concurrent R/W capability. Pair actuator arms and
9 suspension 13 moves on linear stationary micro-rail 16. Similarly, the pair of actuator arm
10 and suspension 14 moves on linear stationary micro-rail 15. Also shown is one of the
11 flexible printed circuit (FPC) electronic wiring 13c and 13d connection that connects wiring
12 13a to the drive electronics board.

13 With reference to figure 4, depicted in perspective view are both pairs of wing shaped
14 actuators-carriage arms 13 and 14 that move upon the stationary micro-rails 16 and 15
15 respectively. This pair of actuator arms 13 enables access to two different quadrant areas 20
16 and 21 of the disks 33 and 34 concurrently. Due to the pair of actuators 13 and 14, a
17 multitude number of inner tracks 22 and a multitude number of outer tracks 23 are
18 read/written concurrently with only 1/2 of a revolution of the disk 33 and 34. The flexible
19 printed circuit (FPC) electronic wiring board 13c and 13d that have a wiring pattern that have
20 signal lines that connect the wing shaped actuator-carriage arms 13 and 13a and R/W heads
21 26, 27, 28, 26b, 27b, 28b (all not shown) to the drive electronics board. The reference center
22 line C indicates the inner limit of the outer actuator 13-one member of the pairs that is over
23 the outer 1/2 tracks-of the disk 33, this is the inner limit reaching border for the outer one of

1 suspensions 13 and 14 cover two quadrants 20 and 21 of the disk 33 area concurrently and
2 can move independently. Data track 23a is one set of innermost tracks of the outer most set
3 of tracks, that are located on the outer 1/2 area of the disk 33. Similarly data track 22b is one
4 set of the inner most tracks that are within the inner 1/2 area of disk 33. The limited
5 designated distances 17 and 17a are assigned to each actuator members of the pair actuator
6 13. Similarly, the actuator pairs 14 move within the designated limited distances of 18 and
7 18a. The opposite quadrants 20 and 21 that the pair of actuators 13 and 14 function upon, are
8 the areas over which the system has concurrent R/W capability. Pair actuator arms and
9 suspension 13 moves on linear stationary micro-rail 16. Similarly, the pair of actuator arm
10 and suspension 14 moves on linear stationary micro-rail 15. Also shown is one of the
11 flexible printed circuit (FPC) electronic wiring 13c and 13d connection that connects wiring
12 to the drive electronics board.

13 With reference to figure 4, depicted in perspective view are both pairs of wing shaped
14 actuators-carriage arms 13 and 14 that move upon the stationary micro-rails 16 and 15
15 respectively. This pair of actuator arms 13 enables access to two different quadrant areas 20
16 and 21 of the disks 33 and 34 concurrently. Due to the pair of actuators 13 and 14, a
17 multitude number of inner tracks 22 and a multitude number of outer tracks 23 are
18 read/written concurrently with only 1/2 of a revolution of the disk 33 and 34. The flexible
19 printed circuit (FPC) electronic wiring board 13c and 13d that have a wiring pattern that have
20 signal lines that connect the wing shaped actuator-carriage arms 13 and 13a and R/W heads
21 26, 27, 28, 26b, 27b, 28b (all not shown) to the drive electronics board. The reference center
22 line C indicates the inner limit of the outer actuator 13-one member of the pairs that is over
23 the outer 1/2 tracks-of the disk 33, this is the inner limit reaching border for the outer one of

1 of invention is 40b. The magnetizable layer of the invention disk 40 is 40a.

2 With reference to figure 10, the actuator arm 13 moves upon micro-rail 16. The R/W
3 transducer heads 26 and thin pads 43 are affixed to said actuator arm 13 and makes R/W
4 heads 26 to fly upon disk surface 33a with a constant fly height 40 39. The actuator 13 moves
5 as its lower cylinder rail member part 13c moves within the cylindrical cavity 16h (not shown
6 in this drawing) of micro-rail 16.

7 With reference to figure 11, the actuator 13 and stationary micro-rail 16 are depicted
8 as these are disassembled. The internal surfaces are such that-enclosed by the micro rail
9 cavity 16h- the cylinder rail member 13c of the actuator 13, moves only linearly-force applied
10 by the analog voice coil motor does not make the rail member 13c to make any upward-
11 vertical, downward or horizontal deflections, since the rail member 13c of actuator 13 is a
12 micro-cylinder and fits exactly to said cavity-as depicted by four sides 16d, 16e and 16f, 16g
13 of micro rail 16. The internal surfaces of cylindrical cavities 16h of said rail 16 have internal
14 and external surface coating 16c that minimizes friction to near zero. Such material is called
15 near zero frictional coating (NFC) invented at Argonne laboratories. Other friction
16 eliminating material could be applied if such is more suitable for this extremely thin layer
17 application that involves very small components. For the form factors of 1 inch and lower,
18 the system would enter the realm of nano-technology, as components and coatings would be
19 proportionally smaller and thinner. R/W transducer heads 26 and thin pads 43 are seen below
20 pairs of actuator-carriage arm 13.

21 With reference to figure 12, depicts in plan view, how the wing shaped pair of
22 actuator arms 13 are able to be positioned over-at a stationary mode and receive a set of data
23 tracks 22 and 23 at an acute angle theta-relative to the actuator arm 13. The connection and

1 of invention is 40b. The magnetizable layer of the invention disk 40 is 40a.

2 With reference to figure 10, the actuator arm 13 moves upon micro-rail 16. The R/W
3 transducer heads 26 and thin pads 43 are affixed to said actuator arm 13 and makes R/W
4 heads 26 to fly upon disk surface 33a with a constant fly height 39. The actuator 13 moves as
5 its lower cylinder rail member part 13c moves within the cylindrical cavity 16h (not shown in
6 this drawing) of micro-rail 16.

7 With reference to figure 11, the actuator 13 and stationary micro-rail 16 are depicted
8 as these are disassembled. The internal surfaces are such that enclosed by the micro rail
9 cavity 16h- the cylinder rail member 13c of the actuator 13, moves only linearly-force applied
10 by the analog voice coil motor does not make the rail member 13c to make any upward-
11 vertical, downward or horizontal deflections, since the rail member 13c of actuator 13 is a
12 micro cylinder and fits exactly to said cavity-as depicted by four sides 16d, 16e and 16f, 16g
13 of micro rail 16. The internal surfaces of cylindrical cavities 16h of said rail 16 have internal
14 and external surface coating 16c that minimizes friction to near zero. Such material is called
15 near zero frictional coating (NFC) invented at Argonne laboratories. Other friction
16 eliminating material could be applied if such is more suitable for this extremely thin layer
17 application that involves very small components. For the form factors of 1 inch and lower,
18 the system would enter the realm of nano-technology, as components and coatings would be
19 proportionally smaller and thinner. R/W transducer heads 26 and thin pads 43 are seen below
20 pairs of actuator-carriage arm 13.

21 With reference to figure 12, depicts in plan view, how the wing shaped pair of
22 actuator arms 13 are able to be positioned over-at a stationary mode and receive a set of data
23 tracks 22 and 23 at an acute angle theta-relative to the actuator arm 13. The connection and

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.